WHAT IS CLAIMED IS:

1. A stage apparatus comprising:

a stage movable along at least one axis;

a laser head for generating a laser beam;

an optical unit which is mounted on said stage and splits the laser beam into reference and measurement beams;

a mirror which is arranged outside said stage and reflects the measurement beam; and

a detector for detecting an interference beam of the reference and measurement beams.

2. The apparatus according to claim 1, wherein said optical unit makes the reference and measurement beams interfere with each other.

3. The apparatus according to claim 1, wherein said detector makes the reference and measurement beams interfere with each other.

4. The apparatus according to claim 1, wherein a direction of the laser beam and a direction of the measurement beam from said optical unit that irradiates said mirror are perpendicular to each other.

5. The apparatus according to claim 1, wherein said stage is movable along X- and Y-axes.

6. The apparatus according to claim 5, wherein said stage is longer in movement stroke along the Y-axis than along the X-axis.

7. The apparatus according to claim 6, wherein the

direction of the laser beam is parallel to the Y-axis, and the measurement beam is parallel to the X-axis.

8. The apparatus according to claim 5, wherein said stage is movable along a Z-axis.

9. The apparatus according to claim 8, further comprising an irradiator for emitting a measurement beam along the Z-axis.

10. The apparatus according to claim 5, wherein said stage is movable along the Z-axis.

11. The apparatus according to claim 5, wherein a reflecting member for reflecting the measurement beam emitted from the Y-axis direction is mounted on said stage.

12. The apparatus according to claim 11, wherein the measurement beam which irradiates said stage from the Y-axis direction includes a plurality of beams.

13. The apparatus according to claim 12, wherein a Z-axis position of said stage is measured by using the measurement beam which irradiates said stage from the Y-axis direction.

14. The apparatus according to claim 12, wherein an X-axis position of said stage is measured by using the measurement beam which irradiates said stage from the Y-axis direction.

15. The apparatus according to claim 5, wherein a plurality of optical units for irradiating said mirror with the measurement beam are mounted on said stage.

16. The apparatus according to claim 15, wherein the Z-axis position of said stage is measured by using the measurement beam from said optical unit that irradiates said mirror.

17. The apparatus according to claim 15, wherein the Y-axis position of said stage is measured by using the measurement beam from said optical unit that irradiates said mirror.

18. The apparatus according to claim 5, wherein a shape of said mirror arranged outside said stage is measured based on pieces of Y-axis position information of at least two points on said stage, and pieces of X-axis position information of at least two points on said stage that are measured by using said plurality of optical units.

19. The apparatus according to claim 18, wherein the X-axis position information on said stage that is measured by using said optical unit is corrected based on a measurement result of the shape of said mirror.

20. The apparatus according to claim 1, wherein positions of six axes of said stage are measured by using a laser beam.

21. The apparatus according to claim 1, wherein said mirror arranged outside said stage is supported at a Bessel point of said mirror.

22. The apparatus according to claim 1, wherein a driving mechanism for driving said stage is controlled

based on a measurement result of a position of said stage.

23. The apparatus according to claim 1, wherein said stage includes a reticle stage which supports a reticle.

24. A stage position measurement method, comprising the steps of:

generating a laser beam from a laser head;

irradiating an optical unit mounted on a movable stage with the laser beam;

splitting the laser beam into reference and measurement beams by the optical unit;

irradiating a mirror arranged outside the stage with the measurement beam;

reflecting the measurement beam which irradiates the mirror;

making the reflected measurement beam interfere with the reference beam;

detecting an interference beam; and

measuring a position of the stage on the basis of a signal concerning the detected interference beam.

25. A projection exposure apparatus comprising as a reticle stage and/or a wafer stage a stage apparatus having a stage movable along at least one axis, a laser head for generating a laser beam, an optical unit which is mounted on the stage and splits the laser beam into reference and measurement beams, a mirror which is arranged outside the stage and reflects the measurement

beam, and a detector for detecting an interference beam of the reference and measurement beams.

26. A semiconductor device manufacturing method comprising the steps of:

installing, in a semiconductor manufacturing factory, manufacturing apparatuses for various processes including a projection exposure apparatus which includes as a reticle stage and/or a wafer stage a stage apparatus having a stage movable along at least one axis, a laser head for generating a laser beam, an optical unit which is mounted on the stage and splits the laser beam into reference and measurement beams, a mirror which is arranged outside the stage and reflects the measurement beam, and a detector for detecting an interference beam of the reference and measurement beams; and

manufacturing a semiconductor device by using the manufacturing apparatuses in a plurality of processes.

27. The method according to claim 26, further comprising the steps of:

connecting the manufacturing apparatuses by a local area network; and

communicating information about at least one of the manufacturing apparatuses between the local area network and an external network outside the semiconductor manufacturing factory.

28. The method according to claim 27, wherein a

database provided by a vendor or user of the projection exposure apparatus is accessed via the external network to obtain maintenance information of the manufacturing apparatus by data communication, or production management is performed by data communication between the semiconductor manufacturing factory and another semiconductor manufacturing factory via the external network.

29. A semiconductor manufacturing factory comprising:

manufacturing apparatuses for various processes including a projection exposure apparatus which includes as a reticle stage and/or a wafer stage a stage apparatus having a stage movable along at least one axis, a laser head for generating a laser beam, an optical unit which is mounted on the stage and splits the laser beam into reference and measurement beams, a mirror which is arranged outside the stage and reflects the measurement beam, and a detector for detecting an interference beam of the reference and measurement beams;

a local area network for connecting said manufacturing apparatuses; and

a gateway which allows the local area network to access an external network outside the factory,

wherein information about at least one of said manufacturing apparatuses can be communicated.

30. A maintenance method for a projection exposure

apparatus which is installed in a semiconductor manufacturing factory, and includes as a reticle stage and/or a wafer stage a stage apparatus having a stage movable along at least one axis, a laser head for generating a laser beam, an optical unit which is mounted on the stage and splits the laser beam into reference and measurement beams, a mirror which is arranged outside the stage and reflects the measurement beam, and a detector for detecting an interference beam of the reference and measurement beams, comprising the steps of:

causing a vendor or user of the exposure apparatus to provide a maintenance database connected to an external network of the semiconductor manufacturing factory;

authorizing access from the semiconductor manufacturing factory to the maintenance database via the external network; and

transmitting maintenance information accumulated in the maintenance database to the semiconductor manufacturing factory via the external network.